

2N3993, 2N3993A**P-CHANNEL SILICON JUNCTION FIELD-EFFECT TRANSISTOR**

- **CHOPPERS**
- **HIGH SPEED COMMUTATORS**

Absolute maximum ratings at $T_A = 25^\circ\text{C}$

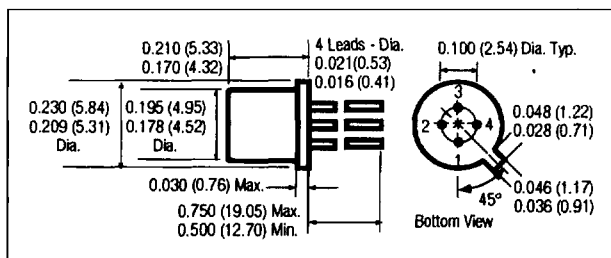
Reverse Gate Source & Reverse Gate Drain Voltage	25 V
Continuous Forward Gate Current	-10 mA
Continuous Device Power Dissipation	300 mW
Power Derating	2.4 mW/°C

At 25°C free air temperature:**Static Electrical Characteristics**

		2N3993		2N3993A		Process PJ99	
		Min	Max	Min	Max	Unit	Test Conditions
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	25		25		V	$I_G = 1 \mu\text{A}, V_{DS} = 0 \text{ V}$
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	4	9.5	4	9.5	V	$V_{DS} = -10 \text{ V}, I_D = -1 \mu\text{A}$
Drain Saturation Current (Pulsed)	I_{DSS}	-10		-10		mA	$V_{DS} = -10 \text{ V}, V_{GS} = 0 \text{ V}$
Drain Reverse Current	I_{DGO}		-1.2		-1.2	nA	$V_{DS} = -15 \text{ V}, I_S = 0 \text{ A}$
			-1.2		-1.2	μA	$V_{DG} = -15 \text{ V}, I_S = 0 \text{ A}$ $T_A = 150^\circ\text{C}$
Drain Cutoff Current	$I_{D(OFF)}$		-1.2		-1.2	nA	$V_{DS} = -10 \text{ V}, V_{GS} = 10 \text{ V}$
			-1		-1	μA	$V_{DS} = -10 \text{ V}, V_{GS} = 10 \text{ V}$ $T_A = 150^\circ\text{C}$

Dynamic Electrical Characteristics

Drain Source ON Resistance	$r_{ds(on)}$		150		150	Ω	$V_{GS} = 0 \text{ V}, I_D = 0 \text{ A}$ $f = 1 \text{ kHz}$
Common Source Forward Transmittance	$ Y_{fs} $	6	12	7	12	mS	$V_{DS} = -10 \text{ V}, V_{GS} = 0 \text{ V}$ $f = 1 \text{ kHz}$
Common Source Input Capacitance	C_{iss}		16		12	pF	$V_{DS} = -10 \text{ V}, V_{GS} = 0 \text{ V}$ $f = 1 \text{ MHz}$
Common Source Reverse Transfer Capacitance	C_{rss}		4.5		3	pF	$V_{DS} = 0, V_{GS} = 10 \text{ V}$ $f = 1 \text{ MHz}$

**TO-72 Package**

Dimensions in Inches (mm)

Pin Configuration

1 Source, 2 Gate, 3 Drain, 4 Case

Surface Mount – SMP 3993, SMP 3993A**InterFET**

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